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10/759,719	01/16/2004	Hak-Phil Lee	5000-1-510	8225
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EXAMINER				
CHEN, SHIN HON				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/759,719

Applicant(s)

LEE ET AL.

Examiner

SHIN-HON CHEN

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. Claims 1-15 have been examined.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter AAPA) in view of Vogler et al. U.S. Pub. No. 20040193902 (hereinafter Vogler).

4. As per claim 1, AAPA discloses a Gigabit Ethernet-based passive optical network comprising:

an OLT for encrypting data and an ONT for receiving encrypted data (AAPA: page 5 lines 15-20: encrypting data between OLT and ONT in a GE-PON). AAPA does not explicitly disclose the method of efficiently encrypting data in a GE-PON. However, Vogler discloses a server for receiving a public key through a transmission medium (Vogler: [0016] lines 12-14: public key of the content rendering device/client), encrypting a secret key by means of the received public key (Vogler: [0016] lines 12-14: the public key is used to encrypt the content key/secret key), transmitting the encrypted secret key (Vogler: [0016] lines 8-10: the encrypted content key is provided to the client), encrypting data by means of the secret key (Vogler: [0016]

lines 4-7: the content key/secret key is used to encrypt digital data), and transmitting the encrypted data, the server being located in a service provider-side (Vogler: [0016]: the content provider is on the service provider side); and an client for transmitting the public key to the server, receiving the secret key transmitted from the server, decrypting the secret key by means of a private key, receiving the data, and decrypting the received data by means of the decrypted the secret key, wherein the public key is used for encrypting the secret key, the secret key is encrypted by means of the public key, and the data is encrypted by the server by means of the secret key (Vogler: [0016]: the encrypted content key is decrypted by using the private key of client and the decrypted content key is used to decrypt encrypted digital content). It would have been obvious to one having ordinary skill in the art to allow the OLT and ONT to communicate securely using the digital rights management method between content provider and client disclosed by Vogler because they are analogous art in network communication. Therefore, it would have been obvious to one having ordinary skill in the art to combine the teachings of Vogler within the system of AAPA because it improves the efficiency of content key distribution.

5. As per claim 2, AAPA as modified discloses the method of claim 1. AAPA as modified further discloses wherein the OLT comprises: a GE-PON OLT MAC module for transmitting input data to a predetermined path; a GMII module for providing an interface between a transmission medium and the GE-PON OLT MAC module; an OLT key management unit for managing a public key transmitted from the ONT and a secret key for encrypting the data; and a data encryption unit for encrypting the data by means of the secret key (Vogler: [0016]: the

plurality of modules required to perform the steps disclosed in this paragraph are obvious in light of the network it is applied to).

6. As per claim 3, AAPA as modified discloses the method of claim 2. AAPA as modified further discloses wherein the GMII module comprises: a PCS module for selectively encoding or decoding input blocks of data and outputting the encoded data or the decoded data; a PMA module for selectively performing a serial conversion or a parallel conversion with respect to input data and outputting the converted data; and a PMD module for converting electrical signals, which are data output from the PMA module, into optical signals, transmitting the optical signals to the transmission medium, converting optical signals received through the transmission medium 300 into electrical signals, and transmitting the electrical signals to the PMA module (AAPA: pages 3-4: the basic architecture of passive optic network).

7. As per claim 4, AAPA as modified discloses the method of claim 2. AAPA as modified further discloses wherein the OLT key management unit comprises: a public key storage unit for storing a public key transmitted from the ONT (Vogler: [0016]: the protected digital data creator /server stores public key of the content rendering device/client); a secret key generation unit for generating a secret key for encrypting the data when the public key is stored in the public key storage unit (Vogler: [0016]: the content key/secret key); and a secret key encryption unit for encrypting the secret key generated by secret key generation unit by means of the public key stored in the public key storage unit (Vogler: [0016]: the content key is encrypted using the client's public key).

8. As per claim 5, AAPA as modified discloses the method of claim 1. AAPA as modified further discloses wherein the ONT comprises: a GE-PON OLT MAC module for transmitting input data to a predetermined path; a GMII module for providing an interface between a transmission medium and the GE-PON OLT MAC module; an ONT key management unit for managing a public key and a private key and decrypting the encrypted data transmitted from the OLT by means of the private key; and a data decryption unit for decrypting the encrypted data transmitted from the OLT by means of the secret key decrypted by the OLT key management unit (Vogler: [0016]: the plurality of modules required to perform the steps disclosed in this paragraph are obvious in light of the network it is applied to).

9. As per claim 6, AAPA as modified discloses the method of claim 5. AAPA as modified further discloses wherein the GMII module comprises: a PCS module for selectively encoding or decoding input blocks of data and outputting the encoded data or the decoded data; a PMA module for selectively performing a serial conversion or a parallel conversion with respect to input data and outputting the converted data; and a PMD module for converting electrical signals, which are data output from the PMA module, into optical signals, transmitting the optical signals to the transmission medium, converting optical signals received through the transmission medium 300 into electrical signals, and transmitting the electrical signals to the PMA module (AAPA: pages 3-4: the basic architecture of passive optic network).

10. As per claim 7, AAPA as modified discloses the method of claim 1. AAPA as modified further discloses wherein the ONT key management unit comprises: a public key storage unit for storing the public key (Vogler: [0016]: the public key belongs to content rendering device); a private key storage unit for storing the private key (Vogler: [0016]: private key associated with the public key used to encrypt the content key); and a secret key decryption unit for decrypting the encrypted secret key transmitted from the OLT by means of the secret key stored in the private key storage unit, and outputting the decrypted secret key to the data decryption unit (Vogler: [0016]: the private key is used to decrypt the encrypted content key).

11. As per claim 8, AAPA as modified discloses the method of claim 1. AAPA as modified further discloses wherein the public key and the private key are respectively a RSA public key and a RSA private key (Vogler: [0016]: the public and private key pair of the content rendering device).

12. As per claim 9, AAPA as modified discloses the method of claim 1. AAPA as modified further discloses wherein the secret key is an AES secret key (Vogler: [0016] line 5: AES).

13. As per claim 10-15, claims 10-15 encompass the same scope if not broader as claims 1-9. Therefore, claim 10-15 are rejected based on the same reasons as set forth above in rejecting claims 1-9.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yokota et al. U.S. Pub. No. 20020164035 discloses reception terminal, key management apparatus, and key updating method for public key cryptosystem.

Mahlab et al. U.S. Pat. No. 7184553 discloses method and system for encryption of optical signals.

Tomko et al. U.S. Pat. No. 5737420 discloses method for secure data transmission between remote stations.

Kontio et al. U.S. Pub. No. 20050004875 discloses digital rights management in a mobile communication network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHIN-HON CHEN whose telephone number is (571)272-3789. The examiner can normally be reached on Monday through Friday 8:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shin-Hon Chen
Examiner
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Supervisory Patent Examiner, Art Unit 2131